

Appl. No. 09/683,993
Amdt. dated 06/08/2005
Reply to Office Action of 04/06/2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended):

1 A device comprising:

2 a port to receive one or more data streams, each data stream including one or more data
3 frames;
4 a task scheduler coupled to the port, the task scheduler to generate a task identifier for
5 every data frame received;
6 a first queue coupled to the task scheduler to hold task identifiers of a first priority type;
7 a second queue coupled to the task scheduler to hold task identifiers of a second priority
8 type, the second priority type different than the first priority type;
9 a switch coupled to the first and second queues, the switch configured to retrieve task
10 identifiers from the first queue and the second queue in a fair manner; and
11 a third queue coupled to the switch, the third queue to hold a plurality of task identifiers
12 placed in the third queue by the switch and provide the task identifiers to a processing
13 unit in the order task identifiers were placed in the third queue retrieved by the switch.

2. (currently amended):

1 The device of claim 1 further comprising:

2 a classifier communicatively coupled to the port to assign a one of a plurality of priority
3 type-types to every data frame received, the plurality of priority types including the first
4 priority type and the second priority type received.

3. (currently amended):

1 The device of claim 1 further comprising:

2 a look-up table store-communicatively coupled to the task scheduler and to the port, the
3 look-up table to provide one of the first priority type and the second priority type to the
4 task scheduler for every data frame received according to the data stream in which the
5 data frame was included, store-to-store conversions between priority types and data frame
6 types.

4. (currently amended):

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1 The device of claim 3 wherein one of the first priority type and the second priority type is
2 pre-assigned to the data stream. the conversions between priority types and data frame types
3 are pre-assigned.

5. (original):

1 The device of claim 3 wherein the conversions between priority types and data frame types
2 are dynamically configured.

6. (original):

1 The device of claim 1 further comprising:
2 a task router coupled to receive task identifiers from the task scheduler and the task
3 identifiers in either the first or second queue.

7. (original):

1 The device of claim 1 wherein the task router is configured to monitor the first queue for an
2 overflow condition and, if an overflow condition is detected, reassign data frame priority
3 types to prevent overflow of the first queue.

8. (original):

1 The device of claim 1 wherein the switch is configured to retrieve task identifiers from the
2 first and second queues in a fair and weighted manner according to priority types of the task
3 identifiers.

9. (original):

1 The device of claim 8 wherein task identifiers with a higher priority type are weighted more
2 heavily than task identifiers with a lower priority type.

10. (original):

1 The device of claim 1 wherein the third queue is a shared execution queue from which one or
2 more processing units retrieve task identifiers to process.

11. (original):

1 A method comprising:

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2 receiving one or more data streams, each data stream including one or more data frames
3 of one or more data frame types;
4 determining a task priority level for each data frame received;
5 routing each data frame to one of one or more storage queues based on the task priority
6 level of each data frame; and
7 retrieving the data frames from the one or more storage queues during a task retrieval
8 cycle according to a fair and weighted processing scheme based on task priority level.

12. (original):

1 The method of claim 11 whercin the task priority level is determined from the data frame
2 type.

13. (original):

1 The method of claim 11 whercin the task priority level corresponding to a particular data
2 frame type is pre-configured.

14. (original):

1 The method of claim 11 wherein each storage queue stores data frames of a different task
2 priority level than the other storage queucs.

15. (original):

1 The method of claim 11 whrcin each data frame type corresponds to particular processing
2 time requirements.

16. (original):

1 The method of claim 15 wherein, according to the weighted processing scheme, data frames
2 of approximavtely equal total proccsing time restrictions are retrieved from each storage
3 queuc in a task retrieval cycle.

17. (original):

1 The method of claim 11 wherein, if an overflow condition is detected in a first storage queue,
2 one or more data frame types are reassigned to different priority levels to prevent further data
3 frames from bcing stored in the first storage queue.

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18. (currently amended):

1 The method of claim 11 further comprising:
2 placing a plurality of the retrieved data frames into an execution queue to be processed.

19. (original):

1 A method comprising:

2 receiving one or more data streams, each data stream including one or more data frames
3 of one or more data frame types;
4 determining a task priority level for each data frame received;
5 assigning a unique task identifier to each received data frame;
6 storing each task identifier to one of multiple storage queues according to the task priority
7 level of the corresponding data frame; and
8 retrieving task identifiers from the one or more storage queues during a task retrieval
9 cycle according to a weighted processing scheme based on task priority levels.

20. (original):

1 The method of claim 19 wherein the task priority level is determined from the data frame
2 type.

21. (original):

1 The method of claim 19 wherein each data frame type corresponds to particular processing
2 time requirements.

22. (original):

1 The method of claim 21 wherein, according to the weighted processing scheme, task
2 identifiers corresponding to data frames of approximately equal total processing time
3 requirements are retrieved from each storage queue in a task retrieval cycle.
4

23. (currently amended):

1 The method of claim 19 further comprising:

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2 placing a plurality of the retrieved task identifiers into an execution queue to be processed.

24. (original):

1 A machine-readable medium having one or more instructions for scheduling processing tasks,
2 which when executed by a processor, causes the processor to perform operations comprising:
3 receiving one or more data streams, each data stream including one or more data frames
4 of one or more data frame types;
5 determining the task priority level for each of the data frames received;
6 routing each data frame to one of one or more storage queues based on the task priority
7 level of each data frame; and
8 retrieving the data frames from the one or more storage queues during a task retrieval
9 cycle according to a fair and weighted processing scheme based on task priority levels.

25. (original):

1 The machine-readable medium of claim 24 wherein the task priority level is determined from
2 the data frame type.

26. (original):

1 The machine-readable medium of claim 24 wherein each storage queue stores data frames of
2 a different task priority level than the other storage queues.

27. (original):

1 The machine-readable medium of claim 24 wherein each data frame type corresponds to
2 particular processing time requirements.

28. (original):

1 The machine-readable medium of claim 27 wherein, according to the weighted processing
2 scheme, data frames of approximately equal total processing time are retrieved from each
3 storage queue in a task retrieval cycle.

29. (original):

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1 The machine-readable medium of claim 24 wherein, if an overflow condition is detected in a
2 first storage queue, one or more data frame types are reassigned to different priority levels to
3 prevent further data frames from being stored in the first storage queue.

30. (currently amended):

The machine-readable medium of claim 24 further comprising:
placing a plurality of the retrieved data frames into an execution queue to be processed.